

The Bible Student.

CONTINUING

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Pervasive Bible Witness to Man's Origin in God's Creative Act.

It is not merely in the opening chapters of Genesis that the Scriptures teach that man owes his being to a creative act of God. This is rather the constant presupposition of every portion of Scripture, and is expressly asserted in numerous passages. No more striking indication of the fundamental place occupied by this assumption in the consciousness of the Biblical writers could be afforded, than that supplied by the way in which it underlies the expression of the religious emotions of the people of God in the Psalms. It lurks in the background of that noble hymn in praise of man's dignity as the lord of creation, which is given us in the 8th Psalm. And even when the voice of the Psalmist sinks into a wail in view of the sad fate of man, the fact that it is God that has created him is made the very ground of the complaint: "Oh remember how short my time is: For what vanity hast thou created all the children of men!" (Ps. lxxxix. 47). The implication is that it is incredible that God should really intend only evil for the work of his hands. Indeed, in another psalm, the psalmist makes this very fact the ground of a claim on God for blessing,—because, as he phrases it (Ps. cxix. 73), "Thy hands have

made me and fashioned me." It is especially in the opening chapters of Genesis, however, that this constant teaching of Scripture is given in its most didactic form. It is thither therefore that we naturally go to find such direct declarations as that "God created man in his own image, in the image of God created he him; male and female created he them" (Gen. i. 27), "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul" (cf. v. 12, vi. 7).

Two Points of Conflict with Modern Speculation.

No one possessed of religious instincts is likely to boggle over the great fundamental fact thus given expression. That we owe our being to God is one of the most intimate convictions of our consciousness and can be discredited only when our general religious nature is itself eradicated. But there are points in the Biblical teaching as to the origin of man which do not appear to be immediately safeguarded by the native instincts of our religious nature, and about which a certain amount of hesitancy seems to have become widespread, under the pressure of modern anthropological speculation. On one or two of these we may

perhaps profitably touch. And we shall select for this purpose a couple of points upon which the conflict of modern speculation and the Scriptural account seems to appear to many acute. We refer to the questions as to the manner in which man has come into being, and the time at which he may be supposed to have come into being.

**Man a Divine
Creation or
Self-Created?**

To bring the first of these matters to its sharpest expression, we may say that for the last half-century modern speculation has exhibited a strong tendency to represent man as having been *self-created*, while the Bible represents him as having been *created by God*. That is to say there has been a wide-spread tendency among men of scientific proclivities to think of man as having come into being by an evolution from preceding forms, wrought out solely by the interaction of forces intrinsic in the evolving material; while on the contrary those who are taught by the Scriptures have been wont to think of man as brought into being by an act of Divine power operating immediately and from without. When so conceived, the conflict between the two views is complete; and the opposition, evolution or creation is absolute. We have here in fact only a new form of the old conflict between Naturalism and Supernaturalism, between Materialism and Theism. There can never be any conciliation between these.

**The
Contradiction in
Part Imaginary.**

It does not appear, however, why this conflict should be pressed to such an extreme. Why should the "Evolutionist" insist that the "ascent to man" must have been accomplished by the blind action of "natural

forces," to the exclusion of all oversight and direction of a higher Power? Why should the Biblicist assert that the creation of man by the Divine fiat must have been immediate in such a sense as to exclude all process, all interaction of natural forces? It does not appear that either is, on the basis of his own data, justified in such an extremity of position. Even though the "Evolutionist" had before him the whole series of generations through which he supposes man to have risen to humanity, he would be as little justified in asserting that this series of steps was accomplished apart from the directing hand of God as a lover of domestic animals would be justified in excluding the breeder as a factor in producing a pen of, say prime Berkshire pigs, or of White Leghorn chickens,—because, forsooth, he could trace their descent through generations, given which the result could not fail to follow. The problem still remains, Why was just this series of changes followed? And Mr. Andrew Lang's question remains in the highest degree pertinent: "Evolution may explain everything; but what explains evolution?" The dogmatic exclusion of the directing hand of God does not lie at all in the facts as observed, but is imported from an anti-theistic prejudice. On the other hand the Biblicist is scarcely justified in insisting upon an exclusive supernaturalism in the production of man, such as will deny the possibility of the incorporation of natural factors into the process. In Psalm lxxxix. 47 for example, God is declared to have "*created all the children of men;*" and in Ps. cxix. 73 to have fashioned the *Psalmist himself*. But surely no individual since Adam has been fashioned by the mere fiat of God, to the complete exclusion of the interaction of natural forces of reproduction. And in the case of the

protoplasts themselves there is significant allusion to a pre-existent stuff out of which they were "formed" (Gen. ii. 7). It does not appear that the emphasis of the Biblical assertion that man owes his existence to the creative act of God need, therefore, exclude the recognition of the interaction of other forces in the process of his formation. It looks therefore very much as if the difference between the parties to this debate might be in large part due to one-sided emphasis on the part of each of a single side of a composite transaction.

**Insoluble
Remainder of
Conflict.** We say the difference looks as if it might be "in large part" due to a difference of emphasis. For after all said, it remains clear that the Scriptures do not represent man as merely an evolution from preceding forms, directed to that great end by the guiding hand of God. For after all said, you cannot get out of preceding forms, by however wisely led an evolution, anything that was not already potentially at least in them: and the Scriptures clearly represent man as something specifically new. The creation-narrative itself in the first chapter of Genesis makes this sufficiently plain. The utmost care is taken in it not only to mark the creation of man as the culmination and climax of the whole creative work, but to separate off his creation as something involving a very special immediacy of the divine action, and resulting in a specifically new product. In the preceding cases it was enough to announce a fiat—"Let be." Here there is pause and counsel—"Let us make." In the preceding cases there is indicated what may be looked upon as a sort of secondary production,—“Let there be,” “Let the waters, or the earth, bring forth.” Here there is asserted a direct act of God,—“Let us make.”

In the preceding cases, each thing is presented as made after its own kind. Here man is set forth as created after the kind of God—"God created man after his own image." In the preceding cases all that entered into each new creation may have come up from below. In man's case a double act and a double result are signalized,—he was formed, indeed, from the dust of the ground, but he was not so left, but God further breathed into his nostrils a breath of life, as if there were something to be signalized as belonging to his nature which did not take hold of what was beneath him, but reached up rather to what is above. The impression that is made by such features of the creation-narrative is strengthened and reinforced by subsequent Scriptures, until it seems quite within the limits of what is required to affirm that the Scriptural account of the origin of man cannot be satisfied by any "evolution" pure and simple—that is, by any providentially led process of development; but requires the assumption of a direct intervention of Power from on High productive of somewhat that is specifically new.

**Properly Limited
Evolution Not
Excluded.** This conclusion does not necessarily involve the denial of the interaction of an evolutionary process in the production of man. It involves only the affirmation that this evolutionary process, if actual in this case, is not adequate for the production of the effect; and that, even though it be theistically conceived, i. e., as the instrument of the Divine hand in producing man. It requires us to call in, at least at this point, an act of God analogous to what we know as a miracle—a "flash of the will that can;" and to insist that in man God "created" something new, the elements of whose being were not

all present even potentially in the precedent stuff. The difference between the modern speculator and the Biblicist cannot be conciliated at this point therefore until, and unless, the speculator is willing to allow the intrusion into the course of evolution—if it be deemed actual in this case—of a purely supernatural act, productive of a somewhat absolutely new, which enters into the composite effect produced as a new feature. But there seems no reason why the speculator should not admit this, unless he occupies a position which is dogmatically anti-supernaturalistic. The whole problem to him should turn on the simple question whether the created being which we call man includes nothing in his nature but what may be accounted for as a derivation from below. If there is anything at all in man's complex nature which cannot be accounted for as merely a more developed form of what is recognizable in lower creatures, then to account for *that*, we must assume an intrusion from above. All that is not derived from nature, must find its account in the entrance of the super-natural.

**Man a Creature
Of Yesterday or
Of Inestimable
Antiquity?**

Let us turn, however, to the second matter that has been brought into keen debate between modern speculation and the believer in the Scriptural record of the origin of man. This concerns the time of the apparition of man on earth. Modern speculation has exhibited a tendency to represent man as having existed a tremendously long period on earth; while readers of the Bible resting on a *prima facie* view of its record have been inclined to represent him as of comparatively recent origin. To be more specific, it has not been unusual for speculators on biographical data to make immense drafts on time in their estimate

of the duration that has been requisite for the attainment of the present condition of animate life on earth,—speaking at times as if only hundreds or thousands of millions of years would suffice; while on the other hand students of the Bible text have been prone to compress the whole life of the world into very narrow limits indeed—dating the creation of the globe often only a few thousands of years back. Professor POULTRON in his address as President of the Zoological section of the British Association for the Advancement of Science (Liverpool, September, 1896), for example, treats as too short the longest time asked by geologists for the duration of the habitable earth,—say some 400,000,000 of years. Dwelling on the number of distinct types of animate existence represented as far back as the Lower Cambrian period of geological time, and on (as he thinks) the necessarily slow process of evolution, he stretches out the time required for the process almost illimitably. On the other hand the estimates of the life of the world current among Bible readers at large assign to it only something like a paltry 6,000 years or so. Here then seems to be a conflict of the most acute kind.

**No Biblical Data
For a Precise
Estimate of Age
Of World.**

On more careful scrutiny, however, the necessity for such a conflict appears far from stringent. It emerges that on both sides there are lacking solid grounds for the estimates of time presented. On the Biblical side, for example, the material relied upon for constructing a chronology of the earlier periods of the world's life seem to be illusory. From Abraham down we have indeed the combined evidence of somewhat minute genealogical records, such so-called "long dates" as those of 1 Kings v. 1, Gal. iii. 17, and several

precise statements concerning the duration of definite shorter periods, together with whatever aid can be derived from a certain amount of contemporary extra-biblical data. For the length of this period there can be no difficulty, therefore, in forming a solid general estimate. But for the pre-Abrahamic periods we are dependent entirely on inferences drawn from the genealogies recorded in the fifth and eleventh chapters of Genesis. And it has been repeatedly shown, most thoroughly of all, perhaps, by the late Dr. WILLIAM HENRY GREEN, in, for instance, a paper published in the *Bibliotheca Sacra*, for April, 1890, that it is precarious in the extreme to draw chronological inferences from these genealogies. The genealogies of Scripture were not constructed for a chronological purpose and any appearance they present of affording materials for chronological inferences is accidental and illusory. While they must be esteemed absolutely trustworthy for the purposes for which they were given, these genealogies are not to be pressed into use for other purposes, for which they were not intended and for which they are not adapted. In particular, it is clear that the purposes for which the genealogies were given did not require a complete record of all the generations, but only an adequate indication of the line of descent. Accordingly it is found that the genealogies of Scripture are freely compressed, and can be seldom confidently affirmed to contain a record of the whole series of generations. A sufficient illustration of the Biblical usage in this regard is provided by the two genealogies given of our Lord in the first chapter of Matthew. For there are, it is to be noted, two genealogies given of Jesus in this single chapter, differing in explication, no doubt, but in no respect in

principle of record. The first is included in the first verse, and traces Jesus back to Abraham in two steps: "Jesus Christ, the son of David, the son of Abraham." The second is included in verses 2-17 and expands the same genealogy into 42 generations, divided for purposes of symmetrical record and easy memory into a threefold scheme of fourteen generations each. The other genealogies in Scripture present the same feature of freedom of compression for all sorts of purposes. And as they are more and more studied, it becomes more and more apparent that it is illegitimate to use them as a basis for chronological calculations, except with the utmost caution and with our eyes clearly open to the fact that in so doing we are subjecting them to a use for which they were never intended. The genealogical tables from Adam to Abraham may be as compressed as, or more compressed than the genealogy of Jesus given in the first verse of Matthew. Only we have in these cases no data derived from other quarters to correct our natural inferences from the *prima facie* appearance of the genealogies. In such circumstances it seems clear that we cannot safely found a conclusion as to the lapse of time on a mere genealogical table.

The Genealogies Of Gen. v. and vi. not "Mere Genealogies." We have purposely used the phrase "a mere genealogical table" in order to prepare the way for taking note of the fact that the tables in the fifth and eleventh chapters of Genesis, which cover the periods between Adam and Noah, and between Noah and Abraham, respectively, are not "mere genealogical tables." On the contrary they differ from all other genealogical tables included in Scripture, in regularly giving for each generation the age of the father at

the birth of the son. The effect of this is to provide what seems to be a continuous series of precisely measured generations, the numbers having only to be added together to supply an exact measure of the time that elapsed from Adam to Abraham. We do not read only that "Adam begat Seth, and Seth begat Enoch, and Enoch begat Kenan" and the like, as we do in "mere genealogies." We read rather that "Adam lived an hundred and thirty years and begat Seth; and Seth lived an hundred and five years and begat Enoch; and Enoch lived ninety years and begat Kenan." Certainly it looks, at first sight, as if we needed only to add these 130, 105 and 90 years in order to obtain the length of time from Adam's creation to Kenan's birth: and only to add together the similar figures throughout the whole list to obtain the precise length of time that elapsed between Adam's creation and the birth of Abraham. Doing this we obtain a sum of only some 2,000 years according to the Hebrew text, or of only something like double that according to the Septuagint text, for this whole interval; and this admits of an estimate of only some 6,000 to 7,000 years for the whole duration of human life up to our own day.

**Similar Features
In Other
Genealogies.**

Plausible as it seems, however, to find a concatenated series of numbers in these genealogies, this use of them appears on close scrutiny unjustified. It is not unusual to find interposed into the structure of the Biblical genealogies a short note here and there telling some interesting fact about a person whose name occurs in the list. Several examples of this custom occur in the genealogy of Jesus recorded in the first chapter of Matthew, to which we have already referred for

illustration. Thus in verse 2 we are told that Judah had "brethren,"—a fact adverted to only in the case of two others of the names that occur (verses 2 and 11), and adverted to in this case, doubtless only because of the significance of the twelve sons of Jacob as tribe-fathers, in the history of Israel. So in verse 3 we are told that Perez had a brother Zerah and was born of Tama; in verse 5 that Boaz was born of Rahab, and Obed of Ruth; and in verse 6 that Solomon was born of "her of Uriah;" while the genealogy closes with the information that the Joseph, down to whom it leads, was "the husband of Mary, of whom was born Jesus, who is called Christ" (v. 16). The introduction of the names of these notable women, the reasons for the introduction of which are very interesting to trace out,—constitutes, it must be seen, a very remarkable feature of this particular genealogy. Another feature of it is supplied by the information attached to the name of David (verse 6) that he was "the King," and to the name of Jechoniah that his life-span falls at the time of the carrying away to Babylon; the account of which is to be found doubtlessly in the artificial arrangement of this genealogy in three tables. The point illustrated by all these insertions of brief pieces of information is that a genealogy may not be a "mere genealogy" and yet remain distinctly a genealogy; and that we need not be surprised to find similar insertions of interesting items of information into other genealogies, nor be misled by them, when discovered, into fancying that the genealogies in question are framed for other than genealogical ends.

**Peculiarity of
Pre-Abrahamic
Genealogies.**

The peculiarity of the genealogies of Genesis v. and xi. will be seen to be a case

precisely in point here. Into the fabric of these genealogies has been inserted a series of remarks designed to preserve the memory of certain notable facts concerning the individuals that constitute the links of the chain. These facts are all of one order, and, when each name is taken by itself operate to exhibit the vigor and longevity of the person named; while when taken together, they exhibit in the clearest light the splendor of humanity in those old times. It is as if the narrative had set itself to manifest to us (in another sense from that the words bear in Gen. vi.) that "there were giants in those days." "And Adam lived an hundred and thirty years," we read "and begat a son in his own likeness, after his image; and called his name Seth: and the days of Adam after he begat Seth were eight hundred years: and he begat sons and daughters; and all the years that Adam lived were nine hundred and thirty years: and he died." Truly we involuntarily exclaim, this was indeed a *man!* And the narrative proceeds to tell us analogous facts of each link in the chain. The impression made on the reader is one of the greatness of those grand men of old, towering above all that the world has since seen. This is just the impression the narrative was meant to make. The decisive proof that to produce such an impression and not to provide materials for a chronological calculation was the intention of the writer in attaching these interesting notes to the names, is supplied by the fact that these notes are apt to this impression in all their items and are not utilizable for a chronological calculation except in a small part of their contents. For it is to be carefully observed that the writer does not confine himself to data which would serve a chronological end. He does

not confine himself to saying: "And Adam lived an hundred and thirty years and begat Seth; and Seth lived an hundred and five years and begat Enoch." If chronology was in his mind, that is all he need have written. But what he says, is: "And Adam lived an hundred and thirty years and begat Seth; *and the days of Adam after he begat Seth were 800 years and he begat sons and daughters; and all the years that Adam lived were 930 years.*" We assuredly must find an account for these additions to "the mere genealogy" which will account for all of them: and when a reason that will account for all of them is found it is illegitimate to seek a different reason for some of them.

Chronological Effect Illusory. It is due merely to the circumstance that the facts adduced in connection with each name are of the same order, that the genealogy assumes the appearance of a concatenated chain of chronological links, when the names are placed side by side; and this is obviously properly to be called an accidental effect. In order to understand the genealogy therefore we must resolutely read each note attached to a name relatively to that name alone. In other words we must read each note as in essence parenthetical—just like the notes in the genealogy in the first chapter of Matthew—and meant to be read solely as referring to the name in hand. If we wrote the list thus we should perhaps see more clearly its essential meaning. For instance: "And Enoch (lived 90 years and) begat Kenan (and Enoch lived after he begat Kenan 815 years and begat sons and daughters; and all the days of Enoch were 905 years; and he died). And Kenan (lived 70 years and) begat Mahalalel," etc. If this be a just account of the state of the matter we should read the genealogy

proper without the parenthetical remarks,—which serve their own purpose indeed, but cannot alter the essential nature of the genealogy into which they are inserted. And in that case the genealogy obviously falls under the laws that govern other genealogies and may be thought to be as compressed as many of them are—or possibly even more compressed than any of them are. Its apparent lending of itself to chronological calculations is illusory and we are left by it in ignorance of everything except that it was through this line of notable men that Noah came down from Adam and Abraham came down from Noah; and that these men were notable men indeed. How many other men, possibly less notable than they, stood intermediately between the links, we have no means of discovering. For all that the genealogies tell us, there may have been many more passed over than were singled out for mention: and the sum of their years may immensely exceed the sum of the years here given. It does not appear extreme to say therefore, as has been said by judicious men, that for all that appears from these genealogies, from the creation of Adam may have been nearer 200,000 years than 2,000 years. Genealogies, as treated in Scripture, are, in a word, so elastic that they may be commodiously stretched to fit any reasonable demand on time.

No Scientific Data to Justify a Long Estimate Of the Age of The World.

On the other hand it cannot be allowed that modern speculation has solid ground beneath it in making the immense demands on time it has sometimes allowed itself. It was a result of the manner of looking at things inculcated by the Huttonian geology, that speculation during the first three-quarters of the nineteen centuries estimated

the age of the habitable globe by hundreds of millions of years. Under this influence Mr. DARWIN in 1859 supposed that 300,000,000 years were far too few to allow to have elapsed since the latter part of the secondary period.* Prof. JUKES in his *Student's Manual of Geology*, reviewing Mr. DARWIN'S argument, and remarking on the vagueness of the data on which they were founded, suggests that the sum of years involved might be just as reasonably reduced or multiplied a hundred fold, thus giving us as limits for the period 3,000,000 and 30,000,000,000 of years. Professor POULTON, as we have seen, even to-day, considers 400,000,000 years too few to assign for the duration of life on earth, while Sir ARCHIBALD GEIKIE on the other hand speaks as if 100,000,000 years might possibly suffice, though for his part he is prepared no doubt to allow as many more as may be required by his fellow-workers.† These general estimates imply, of course, a generous allowance for the duration of human life on earth, although here too estimates vary extremely. The French anthropologist, Professor GABRIEL DE MORTILLET, has lately reiterated his conviction‡ that the appearance of man on earth cannot be dated less than 230,000 years ago. But almost immediately afterwards we find Prof. GEORGE A. DORSEY, of the Field Columbian Museum, bewailing the failure of speculators to agree on “even the approximate time of man's appearance as man on earth”—and noting that within the year estimates of its distance back had been published varying all the way from 200,000 to 15,000 years.§§ As a mat-

**Origin of Species*, Ed. 1, p. 287.

†Address as President of the Geological Section of the British Association, Dover, Sept., 1890.

‡*Revue Mensuelle* of the Paris School of Anthropology, for January 15, 1897.

§§*Science* for July 28, 1897.

ter of fact there has been of late years a strong tendency observable to reduce the estimate of this period to very low terms indeed. The late Dr. DAWSON supposed that from 6,000 to 8,000 years would be ample to allow.‡ Prof. G. F. WRIGHT suggests some 16,000 to 20,000 years. And there is an obvious tendency abroad to acquiesce in an estimate approaching this low figure.

Why Later Speculators Reduce the Estimate.

Numerous factors have conduced to produce this tendency to reduce the time assigned for the duration of human life on earth. These cannot be enumerated here. Some of those which have been most obviously at work may, however, be indicated in passing. First of all, we may adduce the revised estimates of the rate of denudation, erosion, deposition of alluvial matter in deltas, or of stalagmitic matter in the floor of caves; from very exaggerated conceptions of which support was formerly sought for the immensely long periods of time demanded. More careful study has invariably corrected these exaggerated conceptions: and has thus taken away from the long estimates of geological time their sole solid basis in computable fact. The determination of the rate of stalagmitic deposit in British caverns by BOYD DAWKINS and of the rate of recession in the Niagara gorge by GILBERT and POHLMAN are but examples of the immense reduction of the *prima facie* evidence of the duration of geological time. The effect of these revised estimates has been greatly increased by growing uncertainty among biologists as to the factors of evolution. As long as the Darwinian idea reigned unquestioned—that evolution had been accomplished by the fixing of the pressure of the environment of

favorable variations, arising accidentally in the midst of variations in every direction indifferently,—an immense period of time seemed demanded for even the smallest advance in the structure of organisms. But when the sufficiency of “natural selection” to account for the development of organic forms came first to be questioned and then to be in wide-circles denied, the necessity for these large demands on time seemed to be more and more removed. In proportion as evolution is conceived of as advancing in determined directions, come the determination from whatever source you choose; and in proportion as it is conceived as advancing steadily onward by large increments; in that proportion the demand on time is lessened and even the evolutionary speculator feels he can get along with less of it. The relief given him by this revised conception of the factors of evolution was immensely increased by the fact that speculation in other spheres of scientific research was showing itself more and more unwilling to allow the biological speculator the time he was proclaiming himself in need of. The physicists, for instance, led by such men as Lord KELVIN, have become ever more and more insistent that the time demanded by the old uniformitarian and the new biological speculators is not at their disposal. The publication in the sixties of Lord KELVIN’s calculations going to show that the sun has not been shining 60,000,000 years was quite a bomb-shell in the camp of these speculators; and the situation already then acute has been made ever acuter by subsequent revisions of Lord KELVIN’s work by which he has progressively diminished the time he, from the physicists’ standpoint, is ready to allow for biological speculation to disport itself in. As Sir ARCHIBALD GEIKIE complains, “Lord KELVIN has cut off slice

‡*Fossil Men*, 1880, p. 246.

after slice from the allowance of time which he was at first prepared to grant for the evolution of geological history," until he has reduced it to not more than 40 and not less than 20 million of years,—“and probably much nearer twenty than forty.” Sir ARCHIBALD GEIKIE, as we have seen, demands, for his part, at least 100,000,000 for the stratified rocks alone, and is well content to allow as much more as his biological friends “find to be needful for the evolution of organized existence on the globe,”—warning them in “seeking to reconcile their requirements with the demands of the physicist” not to tie “themselves down within limits of time which on any theory of evolution would have been insufficient for the development of the animal and vegetable kingdoms.” How poignant this warning must sound in the ears of the biological speculator is illustrated by the publication by Mr. T. J. J. SEE of the Naval Observatory at Washington, of a very pretty speculation in which he determines the total longevity of the sun to be only 36 million of years, 32 of which belong to its past history. For how much of these 32 millions the earth may be supposed to have been a habitable globe, and for how much of this latter period man may be supposed to have been one of its inhabitants, we must leave our readers to calculate for themselves.

**The Battle
Not the
Theologian's.**

We are not seeking to give the impression that the speculations of the physicists must be given precedence of these of the biologists. Of course, there have been answers published to the physicists. *Nature* for April 18, 1895, contains a very strong argument against Lord KELVIN's conclusions by Prof. PERRY; and *Science* for June 25 and July 7, 1899, contains a very

strenuous reply, from the pen of Prof. CHAMBERLIN to Lord KELVIN's latest statement of his position, which appeared in the same journal for May 12 and 19 of the same year. Notes of defiance have been and continue to be sounded, of course, by both geologists and biologists enough. It is no part of our purpose to interpose between the combatants in this warfare. Enough to point to the conflict and to found on it two remarks. The first is that the conflict as to the age of man on earth is not between Theology and “Science”—any more than it is between Biology and “Science,” or between Physics and “Science.” It is not even between two Sciences—whether these two Sciences be Theology and Biology or Physics and Biology. It is between two sets of scientific speculators, the one basing on data supplied them in the course of their study of physics and the other on data supplied them in the course of their study of biology. Theology as such has no concern in it and may stand calmly by and enjoy the fuss and fury of the battle. The second remark is this: “Science” obviously has no doctrine concerning the age of man on earth. As long as speculators working in different branches of scientific investigation reach such diverse conclusions as to the possible age of man on earth, so long opinion is free as to the actual age of man on earth. The fact appears to be that there are as yet no reliable data in hand on the ground of which we may, from the side of scientific speculation, pronounce confidently how long man has lived on earth. Meanwhile the workers in every separate science owe it to the dignity of their own science, whether that science be Theology or Geology or Physics, to give primary validity in forming their conclusions to the data with which they have to deal as students, each

of his own science; and not to be in haste to desert the ground best known to himself and adopt at second hand the speculative opinions of others, based on data of which he has but secondary knowledge.

**The Real
Opponent a
Veiled Atheism.**

Let us pause in concluding only to observe that the debates which we have been led to review are very largely the creation of a special type of evolutionary speculation. This type is that which owes its origin to the brooding mind of CHARLES DARWIN; and up to recent times it has been the regnant type of evolutionary philosophy. Its characteristic contention is that chance plus time can accomplish everything. Naturally therefore heavy draughts have been made by it on time to account for whatever it seemed hard to attribute to brute chance. JAMES HURON had duly warned his followers against the temptation to appeal to time as if it were itself an efficient cause of results. "With regard to the effects of time," he said, "though the continuance of time may do much in those operations which are extremely slow, when no change to our observation had appeared to take place, yet when it is not in the nature of things to produce the change in question, the unlimited course of time would be no more effectual than the moment by which we measure events in our observation."§ The warning has not been heeded: men have seemed to imagine that if only time enough were given for it, effects could be counted on to come gradually of themselves, without adequate cause. Aimless movement in time will produce an ordered world! You might as well suppose that if you stir up a mass of type with a stick long enough, they will be found to have arranged them-

§ *Theory of the Earth*, II., 205.

selves in the order they stand in on the printed pages of DANTE'S *Inferno*. It will never happen—though you stir for an eternity. And the reason is that such effects do not happen, but are produced only by a cause adequate to them and directed to the end in view. Dr. DAWSON† puts his finger on the exact point of difficulty in the following criticism: "Seriously," he says . . . "the necessity for indefinitely protracted time does not arise from the facts, but from the attempt to explain the facts without any adequate cause, and to appeal to an infinite series of chance interactions apart from a designed plan, and without regard to the consideration that we know of no way in which, with any conceivable amount of time, the first living and organized being could be produced from dead matter. It is this last difficulty which really blocks the way and leads to the wish to protract indefinitely an imaginary process, which must end at last in an insuperable difficulty." Assuredly what chance cannot begin to produce in a moment, chance cannot complete the production of in an eternity. The analysis of the complete effect into an infinite series of parts, and the distribution of these parts over an infinite series of years, leaves the total effect as unaccounted for as ever. What is needed is not time, but cause. Even an eternal process cannot rid us of the necessity of seeking an adequate cause behind every change. A mass of iron is made no more self-supporting by being forged into an illimitable chain formed of innumerable infinitesimal links. Or do we really think that an infinitesimal link may really be conceived as imponderable, and the sum of these innumerable imponderables as a sum of zeros, and therefore still zero?

B. B. W.

† *Relics of Primeval Life*, 1897, 823.